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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/691,461

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Toshihiro Suzuki

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EXAMINER

BODDIE, WILLIAM

ART UNIT

PAPER NUMBER

2629

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/691,461	<b>Applicant(s)</b> SUZUKI ET AL.	
	<b>Examiner</b> William Boddie	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 3-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. In an amendment dated, September 18<sup>th</sup>, 2006, the Applicant cancelled claims 1-2, and amended claims 3-17. Currently claims 3-17 are pending.

#### ***Claim Objections***

2. Claim 3 is objected to because of the following informalities: on line 4 of the claim the following grammatical error is present, "a planar light guide plate having planar light exit surface." Inserting an article such as "a" prior to planar light exit surface would remedy the error. Appropriate correction is required.
3. Claim 17 is objected to because of the following informalities: line 5 of the claim also contains grammatical errors. Specifically, "timing **set based** on a predetermined" and "phase difference **to** the drive signal **to** the display panel," are seen as requiring correction. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakabayashi et al. (US 6,379,017) in view of Masaki (US 6,601,961).

**With respect to claim 3**, Nakabayashi discloses, a light source device comprising:

first (212 in fig. 23c) and second (211 in fig. 23c) light sources which emit light;  
and

a planar light guide plate having planar light exit surface (321-322 in fig. 23c), a light reflecting surface opposite said light exit surface (311-312 in fig. 23c), a first light-emitting region (322 in fig. 23c) which is provided in an area other than the neighborhood of the first light source and which has a first lighting element (204 in fig. 23c) provided on said light reflecting surface (312 in fig. 23c) for taking out, through said light exit surface (322 in fig. 23c), light guided from the side of the first light source, and a second light-emitting region (321 in fig. 23c) which is provided in an area other than the neighborhood of the second light source and which has a second lighting element (204 in fig. 23c) provided on said light reflecting surface (311 in fig. 23c) for taking out, through said light exit surface (321 in fig. 23c), light guided from the side of the second light source (col. 22, lines 21-37; discloses, that the top plate 311-312 reflects the light to be output at the bottom faces 321-322);

Nakabayashi does not expressly disclose wherein the first and second light elements include a light-scattering element formed of fine irregularities on the light reflecting surface of the planar light guide plate.

Masaki discloses, a light guide plate wherein light elements (11 in fig. 6) include a light-scattering element formed of fine irregularities (col. 3, lines 24-28; for example) on the light-reflecting surface (1s in fig. 3; col. 3, line 65) of a planar light guide plate (fig. 1).

Masaki and Nakabayashi are analogous art because they are both from the same field of endeavor namely, design of light guide plates.

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the prism-like elements of Nakabayashi with the fine irregularity light scattering elements of Masaki.

The motivation for doing so would have been the simpler process for producing a light guide plate (Masaki; col. 2, lines 10-11).

Therefore it would have been obvious to combine Masaki with Nakabayashi for the benefit of a simpler manufacturing process to obtain the invention as specified in claim 3.

**With respect to claim 4,** Nakabayashi and Masaki disclose, a light source device according to claim 3 (see above).

Nakabayashi further discloses, wherein the planar light guide plate has light-reflecting elements (2 in fig. 23c; col. 22, line 36) for reflecting light on end faces thereof which are opposite to the first and second light sources, respectively.

**With respect to claim 5,** Nakabayashi and Masaki disclose, a light source device according to claim 3 (see above).

Nakabayashi further discloses, wherein each of the first and second light sources is a plurality of point light sources (col. 22, lines 32-34) which are provided side by side (col. 35, lines 24-26).

**With respect to claim 6,** Nakabayashi and Masaki disclose, a light source device according to claim 3 (see above).

Masaki further discloses, wherein the first light source is provided near the second light-emitting region and wherein the second light source is provided near the first light-emitting region (clear from fig. 23c).

**With respect to claim 7**, Nakabayashi and Masaki disclose, a light source device according to claim 3 (see above).

Nakabayashi further discloses, a first light guide region (left 203 in fig. 23c) for guiding light from the side of the first light source (212 in fig. 23c) to the first light-emitting region (322 in fig. 23c); and

a second light guide region (right 203 in fig. 23c) for guiding light from the side of the second light source (211 in fig. 23c) to the second light-emitting region (321 in fig. 23c);

wherein the first and second light guide regions are provided in the single planar light guide plate (clear from fig. 23c that the light guide plate is a single planar plate).

**With respect to claim 11**, Nakabayashi and Masaki disclose, a light source device according to claim 3 (see above).

Nakabayashi further discloses, wherein the first and second lighting elements include a wedge-like feature of the planar light guide plate (note the clear wedge forms in fig. 23c).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakabayashi et al. (US 6,379,017) in view of Masaki (US 6,601,961) in view of Lin (US 2003/0184990).

**With respect to claim 8**, Nakabayashi and Masaki disclose, a light source device according to claim 3 (see above).

Nakabayashi further discloses, a first light guide region (left 203 in fig. 23c) for guiding light from the side of the first light source (212 in fig. 23c) to the first light-emitting region (322 in fig. 23c); and

a second light guide region (right 203 in fig. 23c) for guiding light from the side of the second light source (211 in fig. 23c) to the second light-emitting region (321 in fig. 23c).

Neither Masaki nor Nakabayashi expressly disclose, stacking a couple of planar light guide plates one on the other.

Lin discloses, stacking planar light guide plates on one another (figs. 2 and 3).

Nakabayashi, Masaki and Lin are analogous art because they are from the same field of endeavor namely, light source devices for display panels.

At the time of the invention it would have been obvious to one of ordinary skill in the art to stack two of Nakabayashi and Masaki's light guide plates as taught by Lin.

The motivation for doing so would have been increased reliability (Lin; para. 20).

Therefore it would have been obvious to combine Lin with Nakabayashi and Masaki for the benefit of increased reliability to obtain the invention as specified in claim 8.

7. Claims 9 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakabayashi et al. (US 6,379,017) in view of Masaki (US 6,601,961) in view of Miura et al. (US 6,693,619).

**With respect to claim 9**, Nakabayashi and Masaki disclose, a light source device according to claim 3 (see above).

Neither Masaki nor Nakabayashi expressly disclose, at what frequencies the light sources are energized.

Miura discloses, a light source driving circuit (12, 15 in fig. 6) for causing first (107 in fig. 7) and second (108 in fig. 7) light sources to emit light at a predetermined flashing frequency at predetermined timing which is different between the light sources (fig. 8; col. 4, lines 49-67).

Nakabayashi, Masaki and Miura are analogous art because they are from the same field of endeavor namely, light source devices for display panels.

At the time of the invention it would have been obvious to one of ordinary skill in the art to drive the light sources of Nakabayashi and Masaki with the different frequencies that are taught by Miura.

The motivation for doing so would have been to eliminate trailing (Miura; col. 5, lines 10-12).

Therefore it would have been obvious to combine Miura with Nakabayashi and Masaki for the benefit of eliminating trailing to obtain the invention as specified in claim 9.

**With respect to claim 13**, Nakabayashi and Masaki disclose, a light source device according to claim 3 (see above).

Nakabayashi further discloses, the use in liquid crystal displays (col. 1, lines 7-11).



Neither Nakabayashi nor Masaki expressly disclose, a display.

Miura discloses, a display panel having a display area including a plurality of pixels (4a in fig. 2);

a driving circuit for supplying a predetermined drive signal to the display panel (11 in fig. 6); and

a light source device for illuminating the display panel (105 in fig. 6).

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the display taught by Miura around the light source device of Nakabayashi.

The motivation for doing so would have been to provide brighter images (Miura; col. 1, lines 22-24).

Therefore it would have been obvious to combine Miura with Nakabayashi and Masaki for the benefit of brighter images to obtain the invention as specified in claim 13.

**With respect to claim 14**, Nakabayashi, Masaki and Miura disclose, a display according to claim 13 (see above).

Miura further discloses, wherein the display panel is a liquid crystal display panel (4 in fig. 1) having a pair of substrates and a liquid crystal sealed between the pair of substrates (col. 1, lines 13-21).

**With respect to claim 15**, Nakabayashi, Masaki and Miura disclose, a display according to claim 13 (see above).

Miura further discloses, first and second light-emitting regions are arranged in a direction in which the display area is scanned (fig. 8; note the captions).

It would have been obvious to orient the light guide of Nakabayashi as taught by Miura for the benefit of improving picture quality (Miura; col. 5, lines 9-11).

**With respect to claim 16**, Nakabayashi, Masaki and Miura disclose, a display according to claim 13 (see above).

Miura further discloses, wherein a flashing frequency for alternatively driving the first and second light source of the light source device (clear from fig. 8, that the light sources are alternated) is equal to a frame frequency of the display panel (col. 5, lines 13-17).

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakabayashi et al. (US 6,379,017) in view of Masaki (US 6,601,961) in view of Koike et al. (US 5,659,410).

**With respect to claim 10**, Nakabayashi and Masaki disclose, a light source device according to claim 3 (see above).

Neither Nakabayashi nor Masaki expressly disclose, wherein the first and second light-emitting regions are divided into respective plural parts, which are alternately arranged.

Koike discloses, first (6a/b in fig. 11a) and second (6/a/b in fig. 11a) light emitting regions that are divided into respective plural parts, which are alternately arranged (note the identical shape of the light guide 1, to the applicant's embodiment seen in fig. 19).

Koike, Masaki and Nakabayashi are analogous art because they are all from the same field of endeavor namely, design of light guide plates.

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the single wedge shape of Nakabayashi and Masaki with the multiple inclination guide taught by Koike.

The motivation for doing so would have been to suppress the reflective appearance and obtain a uniform brightness across the panel (Koike; col. 5, lines 52-57).

Therefore it would have been obvious to combine Koike with Nakabayashi for the benefit of suppressing a reflective appearance to obtain the invention as specified in claim 10.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakabayashi et al. (US 6,379,017) in view of Masaki (US 6,601,961) in view of Yamada et al. (US 5,704,703).

**With respect to claim 12**, Nakabayashi and Masaki disclose, a light source device according to claim 3 (see above).

Neither Masaki nor Nakabayashi expressly disclose, arranging a plurality of light guide plates such that they are optically independent of each other.

Yamada discloses, wherein a plurality of planar light guide plates (72 in fig. 15) are provided such that they are optically independent of each other (col. 13, lines 17-44).

Nakabayashi, Masaki and Yamada are analogous art because they are from the same field of endeavor namely, light source devices for display panels.

At the time of the invention it would have been obvious to one of ordinary skill in the art to arrange the planar light guide plates of Nakabayashi and Masaki in such a manner so that they are optically independent as taught by Yamada.

The motivation for doing so would have been even luminance, sharp directivity and high efficiency (Yamada; col. 13, lines 47-50) .

Therefore it would have been obvious to combine Yamada with Nakabayashi and Masaki for the benefit of even luminance to obtain the invention as specified in claim 12.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakabayashi et al. (US 6,379,017) in view of Masaki (US 6,601,961) in view of Miura et al. (US 6,693,619) further in view of Takemoto (US 6,417,833).

**With respect to claim 17**, Nakabayashi, Masaki and Miura disclose, a display according to claim 16 (see above).

Miura further discloses, causing the first and second light sources to flash at the flashing frequency (clear from fig. 8), and by turning on the first and second light sources to emit light at timing set based on a predetermined phase difference to the drive signal to the display panel (see fig. 8, where while 4a is being scanned the light source for 4b is on; after a predetermined phase difference (after 4a has been updated) the light source of 4a is turned on; this process alternates within each frame).

Neither Nakabayashi, Masaki nor Miura disclose, wherein the driving circuit performs multi-scan.

Takemoto discloses, a driving circuit performs multi-scan (col. 1, lines 57-67; col. 4, lines 18-44).

Nakabayashi, Miura, Masaki and Takemoto are all analogous art because they are all from the same field of endeavor namely light source devices for display panels.

At the time of the invention it would have been obvious to one of ordinary skill in the art to replace the driving circuit of Nakabayashi, Masaki, and Miura with the driving circuit performing multi-scanning as taught by Takemoto.

The motivation for doing so would have been to improve the display quality by eliminating the ripple phenomenon (Takemoto; col. 2, lines 30-34).

Therefore it would have been obvious to combine Takemoto with Nakabayashi, Masaki and Miura for the benefit of display quality to obtain the invention as specified in claim 17.

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

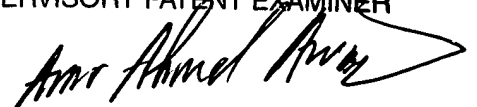
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wlb  
11/2/06

AMR A. AWAD  
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read "Amr A. Awad", is written over a horizontal line.